

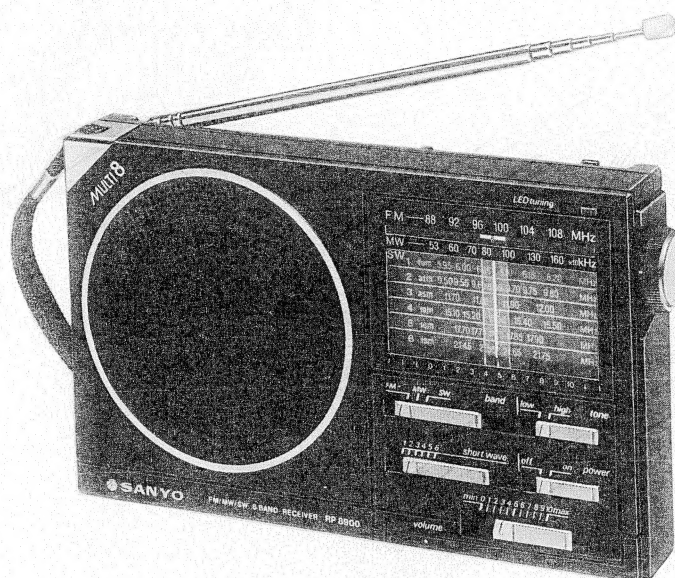
SERVICE MANUAL

PORTABLE RADIO



RP8900

(EUROPE)



SPECIFICATIONS

Frequency range:

| | |
|-----|-------------------|
| FM | 87.5 — 108 MHz |
| MW | 525 — 1605 kHz |
| SW1 | 5.95 — 6.20 MHz |
| SW2 | 9.50 — 9.80 MHz |
| SW3 | 11.70 — 12.00 MHz |
| SW4 | 15.10 — 15.50 MHz |
| SW5 | 17.70 — 17.90 MHz |
| SW6 | 21.45 — 21.75 MHz |

Intermediate frequency:

| | |
|----|----------|
| MW | 460 kHz |
| FM | 10.7 MHz |

ICs:

| | | |
|-------|--------|-----------------|
| IC101 | AN7213 | FM RF Amp & MIX |
|-------|--------|-----------------|

| | | |
|-------|---------|--------|
| IC102 | AN7223A | IF Amp |
|-------|---------|--------|

| | | |
|-------|-------|-----------|
| IC103 | BA526 | Power Amp |
|-------|-------|-----------|

Transistor:

| | | |
|------|---------|-----------|
| Q101 | 2SK212F | SW RF Amp |
|------|---------|-----------|

| | | |
|------|---------|----------|
| Q102 | 2SC930E | SW MIXER |
|------|---------|----------|

| | | |
|------|---------|--------|
| Q103 | 2SC930E | SW OSC |
|------|---------|--------|

| | | |
|------|---------|---------------|
| Q104 | 2SK212F | SW Buffer Amp |
|------|---------|---------------|

| | | |
|------|---------|-----------|
| Q301 | 2SC930E | FM IF Amp |
|------|---------|-----------|

| | | |
|------|---------|-------------------|
| Q302 | 2SC536G | Tuning LED Driver |
|------|---------|-------------------|

| | | |
|------|---------|-------------------|
| Q303 | 2SA608F | Tuning LED Driver |
|------|---------|-------------------|

Diode:

| | | |
|------|---------|-------------------------|
| D101 | GMA01 | Electrostatic Protector |
| D102 | GMA01 | Electrostatic Protector |
| D103 | SD115 | FM AFC |
| D104 | GMA01 | Stabilizer |
| D105 | GMA01 | SW AGC |
| D106 | GMA01 | SW AGC |
| D107 | GMA01 | SW AGC |
| D108 | SLP155B | Tuning LED |
| D109 | GMA01 | Electrostatic Protector |
| D110 | 1S2473 | Electrostatic Protector |

Sensitivity:

| | |
|-----|---------------|
| FM | 10 μ V |
| MW | 280 μ V/m |
| SW1 | 10 μ V |
| SW2 | 10 μ V |
| SW3 | 10 μ V |
| SW4 | 10 μ V |
| SW5 | 10 μ V |
| SW6 | 10 μ V |

Power Output:

| | |
|-------------|-------|
| Maximum | 600mW |
| Undistorted | 400mW |

Power Source:

| | |
|-----------|-----------------|
| DC: | 6V for UM—3 x 4 |
| EXT DC IN | (150V/230V 6V) |

Speaker:

| | |
|-------|-------|
| 7.7cm | 8 ohm |
|-------|-------|

Dimensions:

| |
|-----------------------------|
| 182(W) x 110(H) x 37 (D) mm |
|-----------------------------|

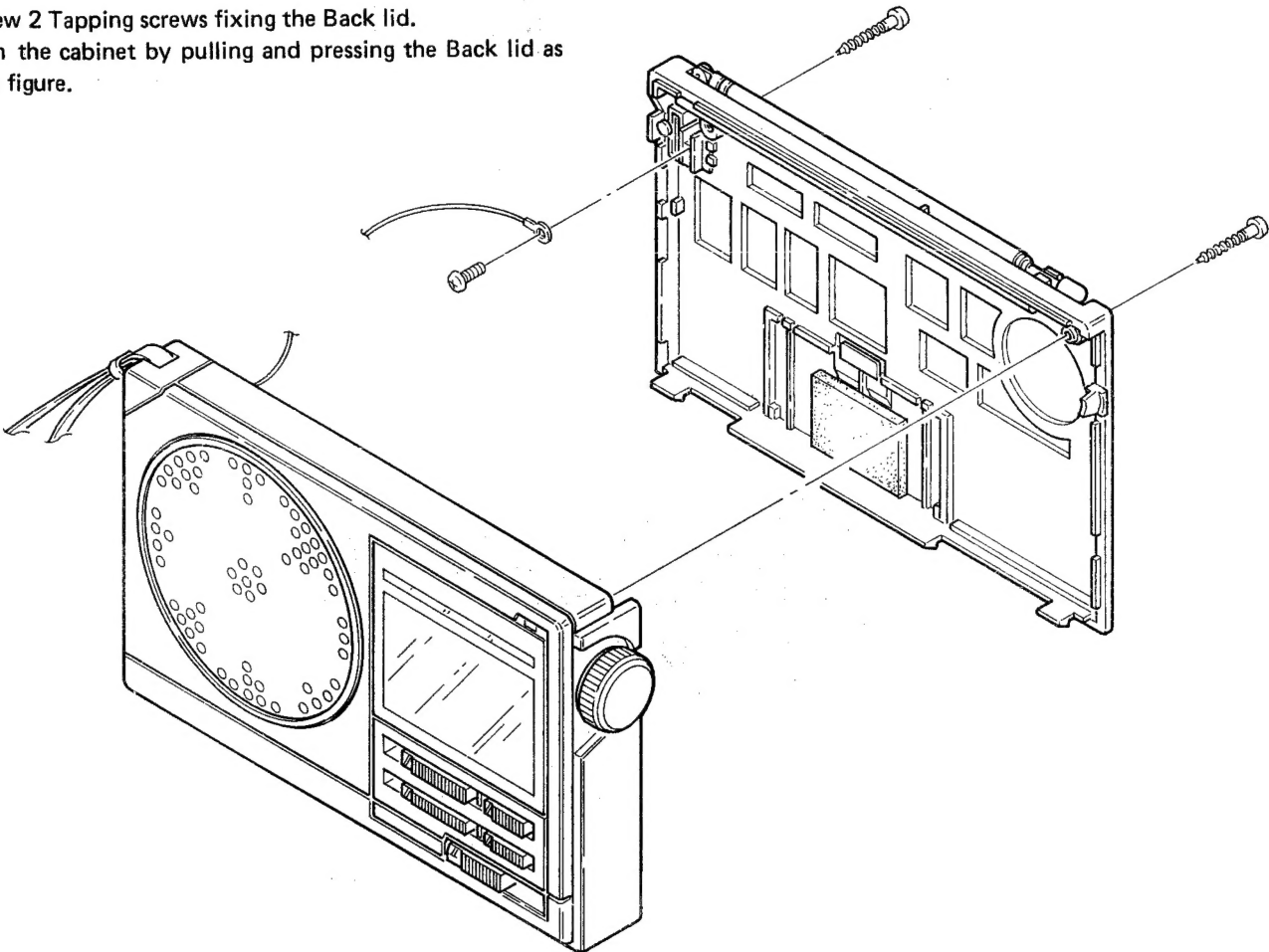
Weight:

| | |
|----------------------|-----------------|
| (With out Batteries) | 450 g (Approx.) |
|----------------------|-----------------|

WM-10614

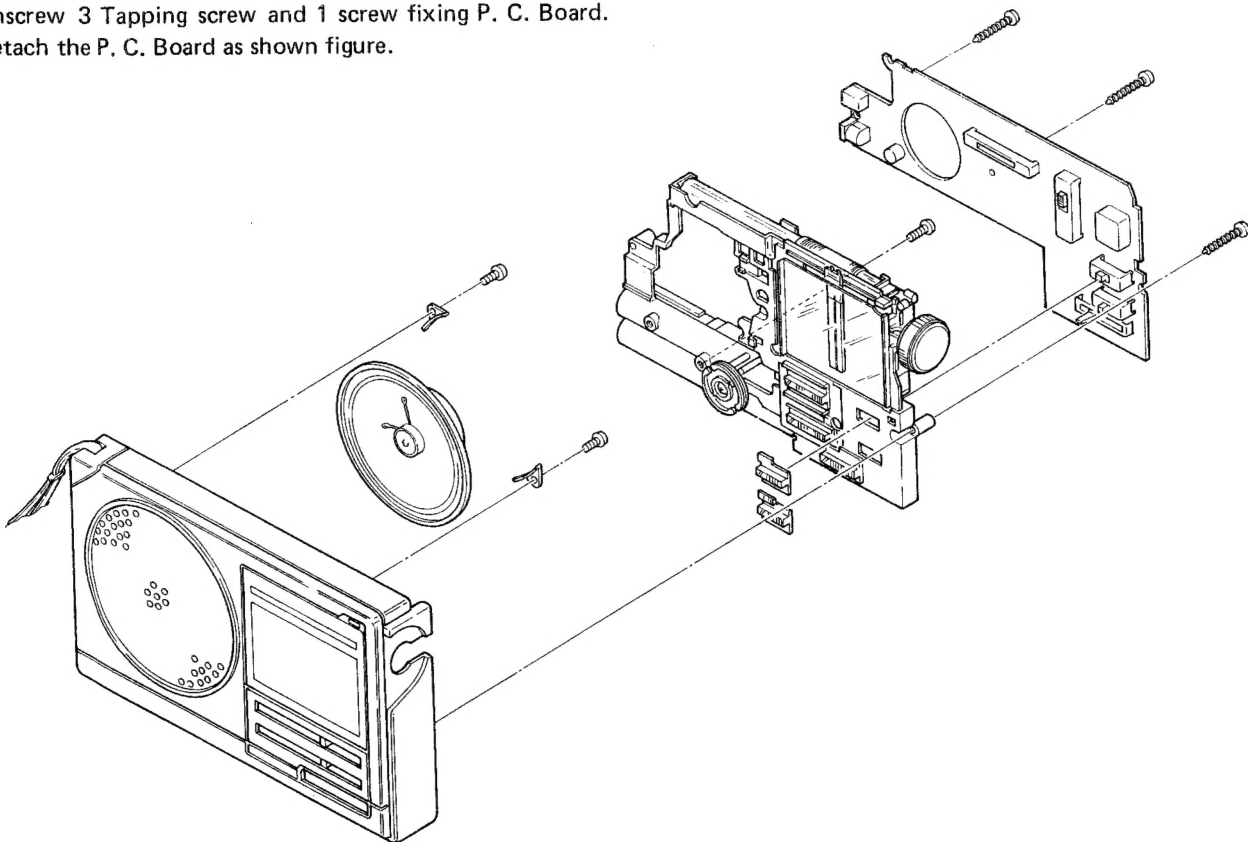
HOW TO DETACH THE CABINET

- 1. Unscrew 2 Tapping screws fixing the Back lid.
- 2. Detach the cabinet by pulling and pressing the Back lid as shown figure.



HOW TO DETACH THE PRINTED CIRCUIT BOARD

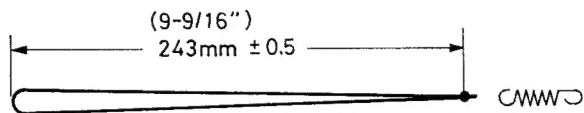
- 1. Unscrew 3 Tapping screw and 1 screw fixing P. C. Board.
- 2. Detach the P. C. Board as shown figure.



DIAL ROPE STRINGING

1. Preparation

Bind the rope to the spring coil so that the turnback length becomes 9-9/16" (243mm).



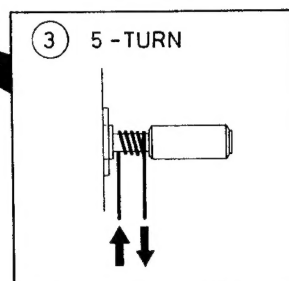
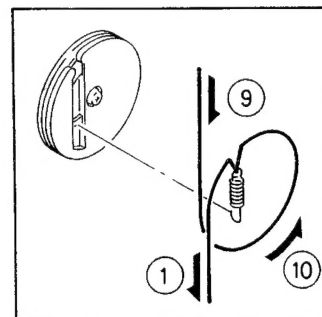
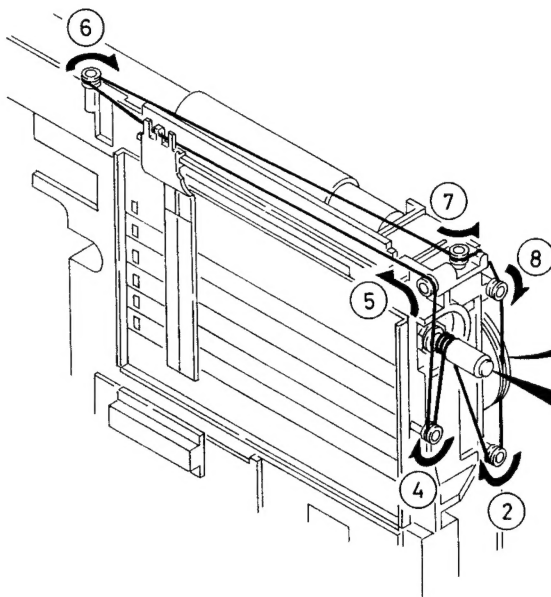
2. Procedure

First, hook the spring coil onto the dial drum (1), and from the end of one side the rope, let it pass through (2), (3), (4), (5), (6), (7), and (8).

Next, put the another side of the rope around the drum (9) as shown figure.

Finally, put the rope at position (10).

| | | | | |
|-----|---|---|------|-------|
| □ 1 | 4 | m | 5.95 | 6.00 |
| □ 2 | 3 | m | 9.50 | 9.55 |
| □ 3 | 2 | m | 17.0 | |
| □ 4 | 1 | m | 5.10 | 15.20 |



HOW TO STRING DIAL ROPE FOR SHORT WAVE INDICATION

1. Preparation

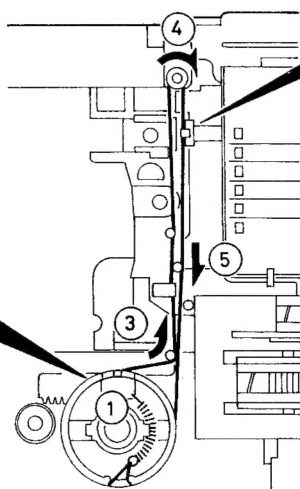
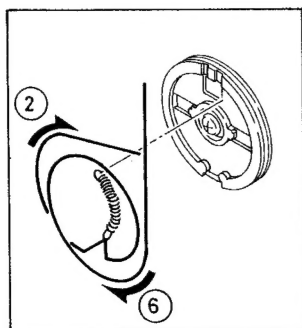
Bind the rope to the spring coil so that the turnback length becomes 6-3/64" (154mm).

2. Procedure

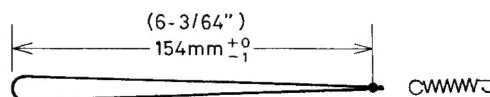
First, hook the spring coil onto the dial drum (1), and from the end of one side the rope, let it pass through (2), (3), and (4).

Next, put the another side of the rope around the drum (5) as shown figure.

Finally, put the rope at position (6).



| | |
|-----|-----|
| □ 1 | 49m |
| □ 2 | 31m |
| □ 3 | 25m |
| □ 4 | 19m |
| □ 5 | 16m |
| □ 6 | 13m |



ALIGNMENT PROCEDURES

GENERAL ALIGNMENT CONDITIONS

1. The position of volume control is at maximum position.
2. Signal input must be kept as low as possible to avoid overload.
3. Use an output meter of the highest possible sensitivity.
4. Standard modulation is 1 KHz at 30% amplitude (for AM) and 22.5 kHz deviation (for FM).

MW BAND — Band selector switch in MW position

| Step | Connection of Signal Gen. | Input Signal Frequency | Dial Setting of Radio | Connection of Output Meter | Adjust | Remarks |
|------|---------------------------|------------------------|-----------------------|----------------------------|-----------------|--------------------|
| 1 | Loop Antenna | 460 kHz | Lowest End | Across Speaker | IFT T302 | Adjust for Maximum |
| 2 | Same | 517 kHz | Lowest End | Same | Osc. Coil L104 | Same |
| 3 | Same | 1650 kHz | Highest End | Same | Osc. Trim. VCT2 | Same |
| 4 | Same | 600 kHz | 600 kHz | Same | Ant. Coil L103 | Same |
| 5 | Same | 1400 kHz | 1400 kHz | Same | Ant. Trim. VCT1 | Same |

Repeat steps 1 thru 5 to obtain maximum sensitivity.

FM BAND — Band selector switch in FM position

| Step | Connection of Signal Gen. | Input Signal Frequency | Dial Setting of Radio | Connection of Meter or Oscilloscope | Adjust | Remarks |
|------|---|------------------------|-----------------------|--|-----------------|---|
| 1 | Connect Sweep Marker Generator to (H) TP1, (E) TP2. | 10.7 MHz | Lowest End | Connect scope Input cable thru network to (H) TP3, (E) TP4 | IFT, T301 | Adjust for Maximum sensitivity with symmetrical curve |
| 2 | Same | 10.7 MHz | Lowest End | Connect scope Input cable thru network to (H) TP3, (E) TP4 | IFT T303 | Adjust for symmetrical "S" curve |
| 3 | Connect Signal Generator to (H) TP1, (E) TP2. | 87.35 ± 0.15 MHz | Lowest End | Connect V. T. V. M. across speaker | Osc. Coil L102 | Adjust for Maximum |
| 4 | Same | 108.5 ± 0.3 MHz | Highest End | Same | Osc. Trim. CT-2 | Same |
| 5 | Same | 90 MHz | 90 MHz | Same | RF Coil L101 | Same |
| 6 | Same | 106 MHz | 106 MHz | Same | RF Trim. VCT3 | Same |

Repeat steps 1 thru 6 to obtain maximum sensitivity.

SW1 BAND — Band selector switch in SW1 position

| Step | Connection of Signal Gen. | Input Signal Frequency | Dial Setting of Radio | Connection of Output Meter | Adjust | Remarks |
|------|---------------------------|------------------------|-----------------------|----------------------------|----------------|--------------------|
| 1 | Dummy Antenna | 5.930 MHz | Lowest End | Across Speaker | Osc. Coil L113 | Adjust for Maximum |
| 2 | Same | 6.230 MHz | Highest End | Same | Osc. Trim. CT1 | Same |
| 3 | Same | 6.075 MHz | 6.075 MHz | Same | Ant. Coil L105 | Same |

Repeat steps 1 thru 3 to obtain maximum sensitivity.

SW2 BAND — Band selector switch in SW2 position

| Step | Connection of Signal Gen. | Input Signal Frequency | Dial Setting of Radio | Connection of Output Meter | Adjust | Remarks |
|------|---------------------------|------------------------|-----------------------|----------------------------|----------------|--------------------|
| 1 | Dummy Antenna | 9.650 MHz | Center | Same | Osc. Coil L114 | Adjust for Maximum |
| 2 | Same | 9.650 MHz | 9.650 MHz | Same | Ant. Coi. L106 | Same |

ALIGNMENT PROCEDURES

SW3 BAND — Band selector switch in SW3 position

| Step | Connection of Signal Gen. | Input Signal Frequency | Dial Setting of Radio | Connection of Output Meter | Adjust | Remarks |
|------|---------------------------|------------------------|-----------------------|----------------------------|----------------|--------------------|
| 1 | Dummy Antenna | 11.850 MHz | Center | Across Speaker | Osc. Coil L115 | Adjust for Maximum |
| 2 | Same | 11.850 MHz | 11.850 MHz | Same | Ant. Coil L107 | Same |

SW4 BAND — Band selector switch in SW4 position

| Step | Connection of Signal Gen. | Input Signal Frequency | Dial Setting of Radio | Connection of Output Meter | Adjust | Remarks |
|------|---------------------------|------------------------|-----------------------|----------------------------|----------------|--------------------|
| 1 | Dummy Antenna | 15.300 MHz | Center | Same | Osc. Coil L116 | Adjust for Maximum |
| 2 | Same | 15.300 MHz | 15.300 MHz | Same | Ant. Coil L108 | Same |

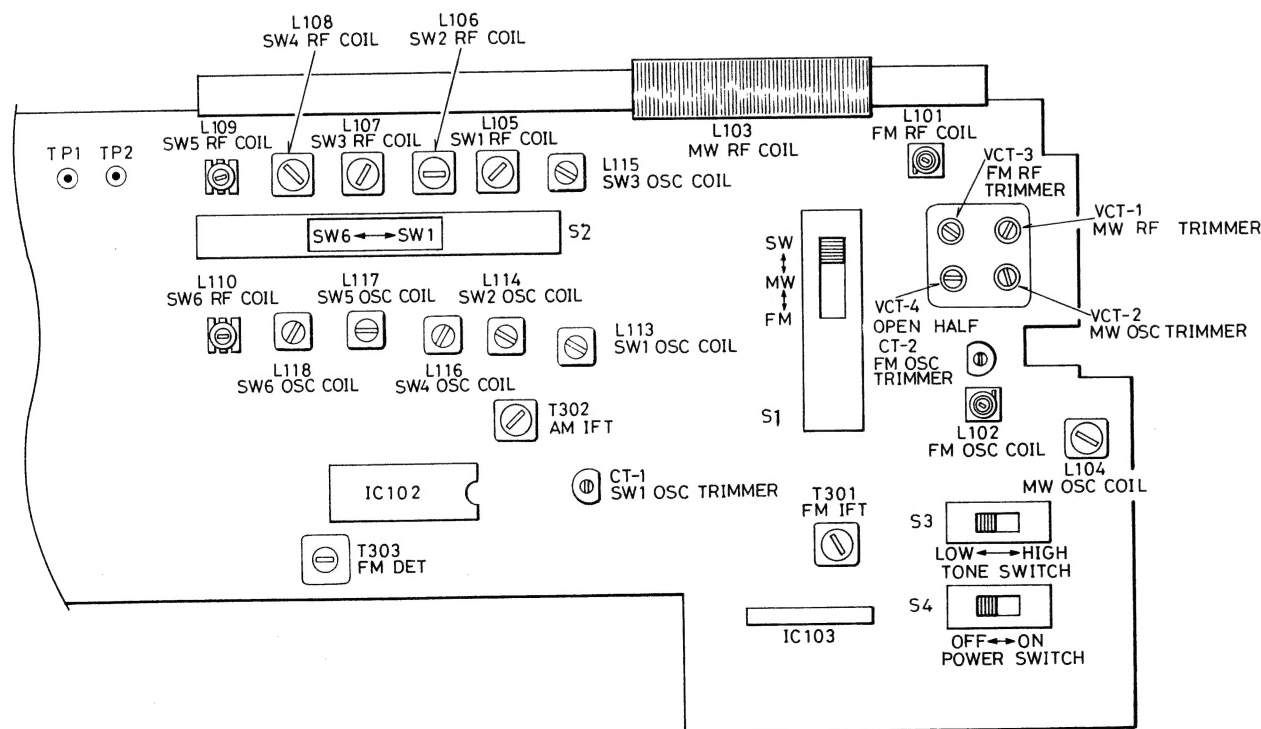
SW5 BAND — Band selector switch in SW5 position

| Step | Connection of Signal Grn. | Input Signal Frequency | Dial Setting of Radio | Connection of Output Meter | Adjust | Remarks |
|------|---------------------------|------------------------|-----------------------|----------------------------|----------------|--------------------|
| 1 | Dummy Antenna | 17.800 MHz | Center | Acroos Speaker | Osc. Coil L117 | Adjust for Maximum |
| 2 | Same | 17.800 MHz | 17.800 MHz | Same | Ant. Coil L109 | Same |

SW6 BAND — Band selector switch in SW6 position

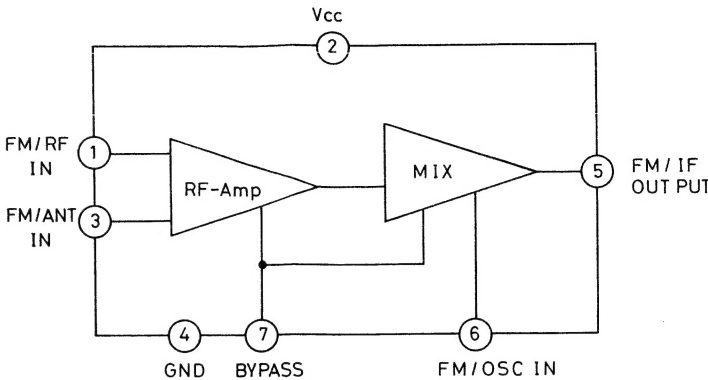
| Step | Connection of Signal Gen. | input Signal Frequency | Dial Setting of Radio | Connection of Output Meter | Adjust | Remarks |
|------|---------------------------|------------------------|-----------------------|----------------------------|----------------|--------------------|
| 1 | Dummy Antenna | 21.600 MHz | Center | Same | Osc. Coil L118 | Adjust for Maximum |
| 2 | Same | 21.600 MHz | 21.600 MHz | Same | Ant. Coil L110 | Same |

PART LOCATION

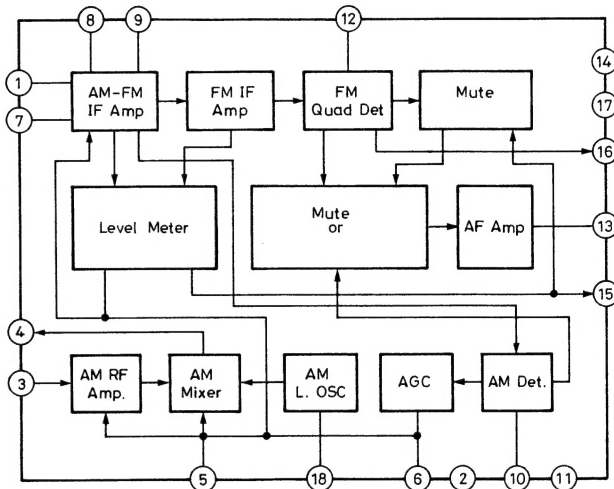


IC BLOCK DIAGRAM

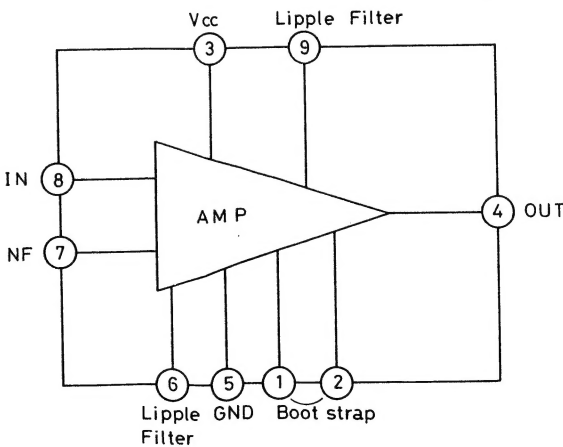
AN7213 (FM RF Amp & MIX)



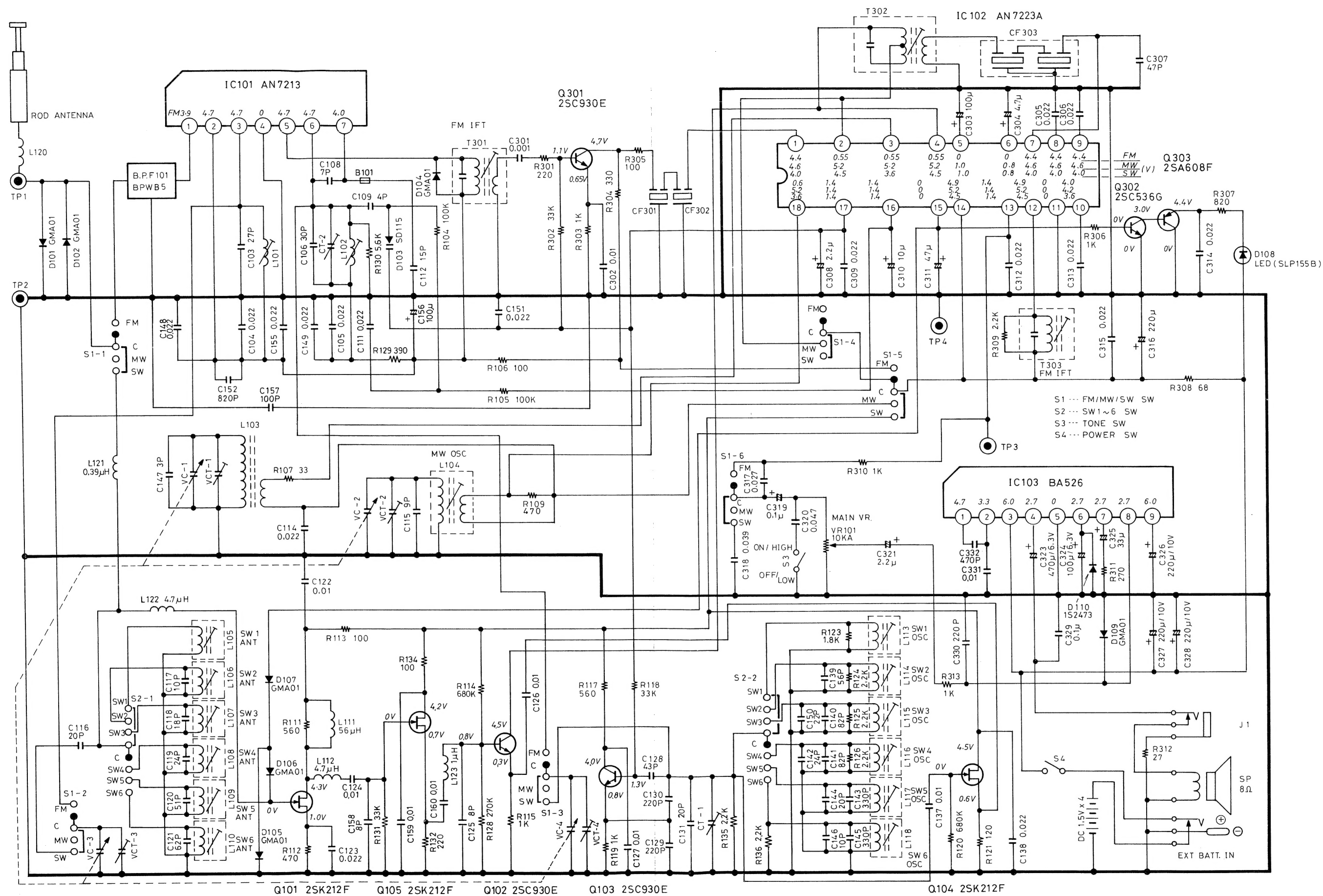
AN7223A (AM-Tuner & FM/AM IF System)



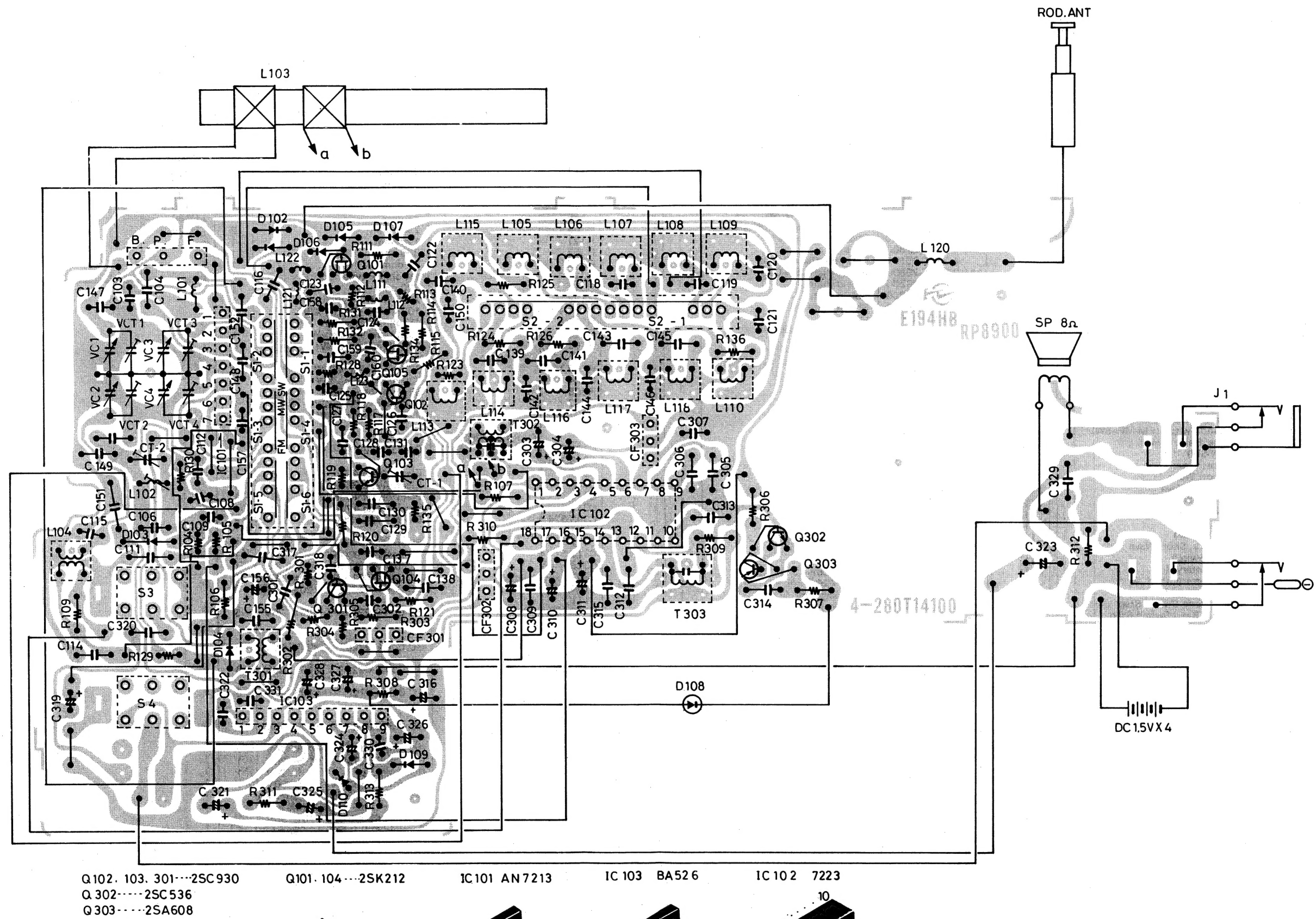
BA 526 (Power Amplifier)



SCHEMATIC DIAGRAM



WIRING DIAGRAM



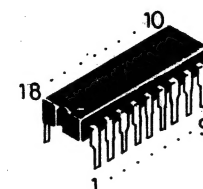
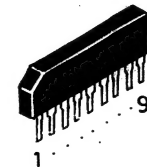
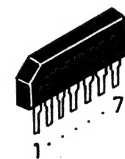
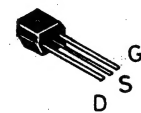
Q102, 103, 301---2SC930
Q 302---2SC536
Q 303---2SA608

Q101, 104---2SK212

IC101 AN7213

IC 103 BA526

IC 102 7223



PARTS LIST

| Key. No. | Part No. | Description | Q'ty | Key. No. | Part No. | Description | Q'ty |
|-------------------|------------------|------------------------------------|------|----------------------|---------------------------|-----------------------------|------|
| PACKING | | | | ELECTRICAL PARTS | | | |
| | 141-6-141T-19002 | Display Carton | 1 | | 4-244T-06500 | Rod Antenna | 1 |
| | 141-6-144T-90000 | Foam Plastic Case, Left | 1 | | 4-151T-44100 | Speaker | 1 |
| | 141-6-144T-90100 | Foam Plastic Case, Right | 1 | | 123-2-472R-00401 | Lug | 1 |
| | 141-6-410T-92202 | Instruction Manual | 1 | | 4-152T-03101 | Earphone | 1 |
| | 141-6-231T-15305 | Inner Poly Cover, Set | 1 | TUNER P. C. B. ASS'Y | | | |
| | 141-2-181T-14700 | Case | 1 | | | | |
| CABINET & CHASSIS | | | | | | | |
| | 141-0-111T-55702 | Cabinet Ass'y | 1 | S3,4 | 141-4-280T-14100 | P. C. Board Ass'y | 1 |
| | 141-0-126T-42402 | Back Lid Ass'y | 1 | SW1-6, S2 | 4-231T-81500 | Slide Switch, Tone, Power | 2 |
| | 141-0-128T-20200 | Battery Lid Ass'y | 1 | S1 | 4-238T-61600 | Switch | 1 |
| | 141-2-372T-04400 | Bracket Speaker | 2 | VR101 | 4-238T-61700 | Switch, FM/MW/SW | 1 |
| | 141-2-372T-13200 | Slide, Rod Antenna | 1 | | 4-220T-07400 | Variable Resistor, 10K ohm | 1 |
| | 141-2-661T-37200 | Pulley, Rod Antenna | 1 | | 4-235R-86100 | Socket, Earphone | 1 |
| | 123-2-472R-00401 | Lug, Rod Antenna | 1 | TP1,2 | 4-240T-27800 | Socket | 1 |
| | 141-0-163T-94400 | Rotary Knob Ass'y, Tuner | 1 | | 4-237T-00171 | Terminal Board | 2 |
| | 141-0-311T-44400 | Chassis Ass'y | 1 | | 141-2-322T-79800 | Shield Plate, SW Coil | 1 |
| | 141-0-566T-14000 | Tuning Shaft Ass'y | 1 | | 141-2-322T-79900 | Shield Plate, IC | 1 |
| | 141-2-538T-14700 | Drum | 1 | | 141-2-322T-80300 | Shield Plate | 1 |
| | 141-2-511T-25900 | Pointer | 1 | B101 | 141-2-322T-80700 | Shield Plate | 1 |
| | 141-0-661T-35200 | Pulley Ass'y | 7 | | 123-2-471R-10900 | Core | 1 |
| | 141-2-146T-31901 | Dial Scale | 1 | BPF101 | 4-224T-22600 | Variable Capacitor | 1 |
| | 141-2-340T-02530 | Rope | 1 | L101 | 4-253T-13471 | Filter | 1 |
| | 141-2-856T-20300 | Spring Coil, Rope | 1 | L102 | 4-265T-59630 | V. H. F. Coil | 1 |
| | 141-2-164T-32100 | Slide Knob, Power & Tone | 2 | L103 | 4-265T-59830 | V. H. F. Coil | 1 |
| | 141-2-164T-32200 | Slide Knob, Band Switch | 2 | L104 | 4-257T-54100 | Antenna Coil | 1 |
| | 141-2-164T-32300 | Slide Knob, Volume | 1 | L105 | 4-258T-44610 | O. S. C. Coil | 1 |
| | 141-2-732T-13300 | Slide, Band Switch (FM-MW-SW) | 1 | L106 | 4-257T-59040 | Antenna Coil | 1 |
| | 141-2-742T-99100 | Lever, Band Switch (FM-MW-SW) | 1 | L107 | 4-257T-53640 | Antenna Coil | 1 |
| | 141-2-245T-13100 | Back Plate, Band Switch (FM-MW-SW) | 1 | L108 | 4-257T-53740 | Antenna Coil | 1 |
| | | | | L109 | 4-257T-53840 | Antenna Coil | 1 |
| | | | | L110 | 4-257T-53940 | Antenna Coil | 1 |
| | | | | L111 | 4-257T-54040 | Antenna Coil | 1 |
| | | | | L112,122 | 4-252T-03910 | Choke | 1 |
| | | | | L121 | 4-253T-04816 | Filter | 1 |
| | | | | L123 | 4-253T-14803 | Filter | 1 |
| | | | | L124 | 4-253T-14808 | Filter | 1 |
| | | | | L125 | 4-258T-45840 | O. S. C. Coil | 1 |
| | | | | L126 | 4-258T-45840 | O. S. C. Coil | 1 |
| | | | | L127 | 4-258T-41440 | O. S. C. Coil | 1 |
| | | | | L128 | 4-258T-41540 | O. S. C. Coil | 1 |
| | | | | L129 | 4-258T-41640 | O. S. C. Coil | 1 |
| | | | | L130 | 4-258T-41740 | O. S. C. Coil | 1 |
| | | | | L131 | 4-258T-41840 | O. S. C. Coil | 1 |
| | | | | L132 | 4-265R-12500 | V. H. F. Coil | 1 |
| | | | | L133 | 4-224T-15471 | Trimmer, 30p | 1 |
| | | | | L134 | 4-224T-15571 | Trimmer, 11p | 1 |
| | | | | L135 | 4-256T-80400 | I. F. Filter 10.7M, Red | 1 |
| | | | | L136 | 4-256T-80471 | I. F. Filter 10.67M, Blue | 1 |
| | | | | L137 | 4-256T-80472 | I. F. Filter 10.73M, Orange | 1 |
| | | | | L138 | 4-256T-80473 | I. F. Filter 10.64M, Black | 1 |
| | | | | L139 | 4-256T-80474 | I. F. Filter 10.76M, White | 1 |
| | | | | L140 | 4-256T-83371 | I. F. Filter (468 kHz) | 1 |
| | | | | L141 | 4-256T-26940 | I. F. T | 1 |
| | | | | L142 | 4-256T-29610 | I. F. T | 1 |
| | | | | L143 | 4-256T-26810 | I. F. T | 1 |
| | | | | L144 | IC AN7213 | IC AN7213 | 1 |
| | | | | L145 | IC AN7223A | IC AN7223A | 1 |
| | | | | L146 | IC BA526 | IC BA526 | 1 |
| | | | | L147 | Transistor, 2SK212 F1 | Transistor, 2SK212 F1 | 3 |
| | | | | L148 | Transistor, 2SC536 AUD | Transistor, 2SC536 AUD | 1 |
| | | | | L149 | Transistor, 2SA608 | Transistor, 2SA608 | 1 |
| | | | | L150 | Transistor 2SC930 IF | Transistor 2SC930 IF | 1 |
| | | | | L151 | Transistor 2SC930 E1 CONV | Transistor 2SC930 E1 CONV | 2 |
| | | | | L152 | LED SLP155B Red | LED SLP155B Red | 1 |
| | | | | L153 | Varactor Diode SD115 | Varactor Diode SD115 | 1 |
| | | | | L154 | Diode GMA01 | Diode GMA01 | 6 |
| | | | | L155 | Diode GMA01 | Diode GMA01 | 1 |
| | | | | L156 | Diode 1S2473 | Diode 1S2473 | 1 |
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